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09/787,594	06/25/2001	Henning Molsen	YAMAP0757US	4696

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EXAMINER	
NGUYEN, HOAN C	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/787,594	MOLSEN ET AL.	
	Examiner	Art Unit	
	HOAN C. NGUYEN	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51-59,61,63,64,66,68,70,76,78,81 and 82* is/are pending in the application.

4a) Of the above claim(s) *1-50, 60, 62, 65, 67, 69, 71,73- 77, 79- 80* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-59,61,63,64,66,68,70,76,78,81 and 82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species D (claims 38-82) according to Fig. 12 in Paper No. 9 is acknowledged.

However, claim 38 recites "a light source is located behind the rear polariser" according to Figure 4 and claim 51 recites "each pixel is provided with a light filter, and the backlight comprises a plurality of sequentially flashing light sources" according to Figure 12. A regular light source 30 and sequentially flashing light sources 102/104/106 are related to the different inventions, which need different search for two kinds of these light sources. Furthermore, a liquid crystal cell according to Figure 12 should be fast response comparable to the flashing rate of sequentially flashing light sources 102/104/106. This fast response requirement does not need for a liquid crystal cell according to Figure 4 with using a light source 30.

Moreover, claims 73-76 recite "the front/rear quarter wave plate has its slow axis substantially normal or parallel to the bisectrix of the surface director orientations of the nematic LC, and the two front retarders form an achromatic combination retarder, and the combination retarder is modified to compensate for the residual retardation of the LC at finite voltages": the **4 elements** of (1) the front/rear quarter wave plate and (2) the two front/rear retarders and (3) the combination retarder are not disclosed in either Figure 4 or Figure 12. Besides, one of two front/rear retarders is a quarter wave plate.

Therefore, claims 38-50, 60, 62, 65, 67, 69, 71, 77, 79 and 80 are withdrawn from consideration for nonelected species B. The claims 73-76 are all withdrawn from consideration for nonelected species. The remaining claims 51-59, 61, 63, 64, 66, 68, 70, 72, 78 and 81-82 will be examined.

Claim Objections

Claims 66, 68, 70 and 72 are objected to because of the following informalities:

- Claims 66, 68, 70 and 72 should depend on claim 59, not depend on 51 since there is no polarizers and retarders cited in claim 51.
- Feature "front and rear polarisers are crossed polarisers" in claim 68 should change into "front and rear polarisers are crossed polarization axes".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 51-54, 56-58 61and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6195140B1) in view of Ge et al. (US5510915A).

In regard to claims 51, 53 and 56-58, Kubo et al. teach (Fig. 30 and 31) a transflective display comprising

- a liquid crystal divided into a plurality of pixels (pixel electrodes 206),
- addressing means TFT for addressing each pixel and switching each pixel between different states resulting in different levels of transmission of light through the display,
- a backlight located behind the liquid crystal,
- a partially reflective mirror 208 located between the liquid crystal the backlight for both reflecting ambient light back through the liquid crystal and allowing transmission of light from the backlight through the liquid crystal characterized in that each pixel is provided with a color light filter (col. 28 lines 46-47), the color light filter can vary level of absorption across its area for different colors as claims 56-57 cited.

wherein

- the liquid crystal forms an OCB cell (claim 54).
- said partially reflective and partially transmissive mirror 207/208 comprises a plurality of gaps or holes according claim 61).
- said partially reflective and partially transmissive mirror is a mirror transparent to a predetermined value of 90% (col. 29 lines 11-12) according to claim 63.

However, Kubo et al. fail to teach the backlight comprises a plurality of sequentially flashing light sources with different color.

Ge et al. teach (col. 7 lines 12-13) a plurality of sequentially flashing light sources with different color for improving brightness and efficiency.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transflective display as Shimada et al. disclosed with a plurality of sequentially flashing light sources with different color for improving brightness and efficiency.

2. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6195140B1) in view of Ge et al. (US5510915A) as claims 51-54, 56-58 61and 63 above and in further view of Jacobsen et al. (US6232937B1).

Jacobsen et al. teach each said sequentially flashing light source is a light emitting diode (LED) for low power consumption and low temperature.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transflective display as Shimada et al. disclosed with each said sequentially flashing light source is a light emitting diode (LED) for low power consumption and low temperature.

3. Claim 59, 66, 68, 78 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6195140B1) in view of Ge et al. (US5510915A) as claims 51-54, 56-58 61and 63 above and in further view of Kishimoto (US5699137).

Kishimoto teaches (Fig. 1), for improving view angle of high contrast, a liquid crystal display comprises

- a liquid crystal disposed between a front substrate and a rear substrate, wherein the nematic LC has antiparallel surface director orientation with surface pretilt,

- a front polariser located in front of the front substrate
- rear polariser located behind the rear substrate,

wherein said front and rear polarisers are crossed polarization axes.

- a front retarder located between the front substrate and the front polariser,
- a rear retarder located between the rear substrate and the rear polariser,

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transflective display as Shimada et al. disclosed with comprising further elements cited in claims 59, 68 and 78 for improving view angle of high contrast.

4. Claims 64 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6195140B1) in view of Ge et al. (US5510915A) as claims 51-54, 56-58 61and 63 above and in further view of Kishimoto (US5699137) as applied to claim 81 above, and further in view of Handschy et al. (US5347378A).

Handschy et al. teach (col. 2 lines 51-58) a nematic liquid crystal "Pi-cell has the ability to switch between colors with a voltage level at a significantly faster rate.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transflective display as Shimada et al. disclosed with a nematic liquid crystal "Pi-cell has the ability to switch between colors with a voltage level for providing frame-sequential color displays at fast rate.

5. Claims 70 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6195140B1) in view of Ge et al. (US5510915A) as claims 51-54, 56-58 61and 63 above and in further view of Kishimoto (US5699137) as applied claim 59 above, and in further view of Sharp et al. (US6046786A).

Sharp et al. teach compound retarders comprising liquid crystal active retarders acting in combination with passive retarders to behave as a single achromatic retarder for providing excellent on-state transmission over the entire visible and high contrast. Thus, the two front retarders function together as an achromatic combination retarder as claims 70 and 72 recited.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transflective display as Shimada et al. disclosed with the two front retarders function together as an achromatic combination retarder as claims 70 and 72 recited for providing excellent on-state transmission over the entire visible and high contrast.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Kubo et al. (US6295109B1) disclose transflective liquid crystal display with reflective portion and tranmissive portion.
- Shimato et al. (US5949507A) disclose the liquid crystal display with reflective electrode with an opening for light transmission.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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June 3, 2003

TOAN TON
PRIMARY EXAMINER